

Columbia University  
Dept. Zoology  
New York 27, N.Y.  
20 November 1945.

My dear Prof. Emerson:

Thank you for cultures "40a" (Keeling) of sulfanamide-resistant *Neurospora*. They have just arrived, and in good condition.

Your comment that this strain is probably not an exceptional pab producer makes it unlikely that there is any direct bearing on my pab-adaptation work. However, I expect to try the following experiments:  
 $E_{1633}^+$  represents adapted 1633;  $1633^+$  is wild type;  $C40^+$  is your SA-resistant.

1. Compare pab production of  $E^+$ ,  $1633^+$  and  $C40^+$  on minimal.
2. Behavior of  $C40 - 1633^-$  types obtained by crossing. It will be interesting to determine the response of these double mutants to pab-SA mixtures.
3. Possibly, effects of  $C40^+$  on sulfanamide-culture medium. (Growth of  $1633^+$ ,  $1633^-$  on culture filtrates): is sulfa destroyed?

There are several disquieting points in your letter. It would help me greatly if you could clear these up:

1. Inhibition by PAB! Is wild type inhibited by PAB? Is  $C40^+$  (at what concentrations)?
2. Stability of  $C40$  on minimal? What can I keep it on, that will support growth of Wild Type?

about  $E_{1633}$ . There isn't much to say. It seems to mutate rather readily back to the prob-less type in some cases. A linkage to the 1633 locus is desperately required; at present, because of this mutability I cannot assure myself that  $E_{1633}$  is or is not allelic to 1633. It had not occurred to me to compare frequency of 2nd division segregation of  $E^+/E^-$ , as you suggested for your ST-resistance gene. (These mutability complications cause my former conclusions, based on the results of  $E^+ \times$  Wild Type crosses, that  $E$  was not allelic to 1633.)

A number of people are fundamentally interested in sulfonamide-resistance here at the Columbia Medical School. If I can persuade them to work on Neurospora, something may come out on the mechanism of the resistance. I shall, of course, refer them to Dr. Cushing and yourself, "per tua facie".

Thank you again for your cooperation.

Truly yours,

Joshua Ledbury

(\* N.B. - no longer A.S. user.)